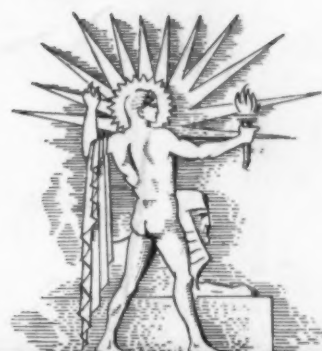
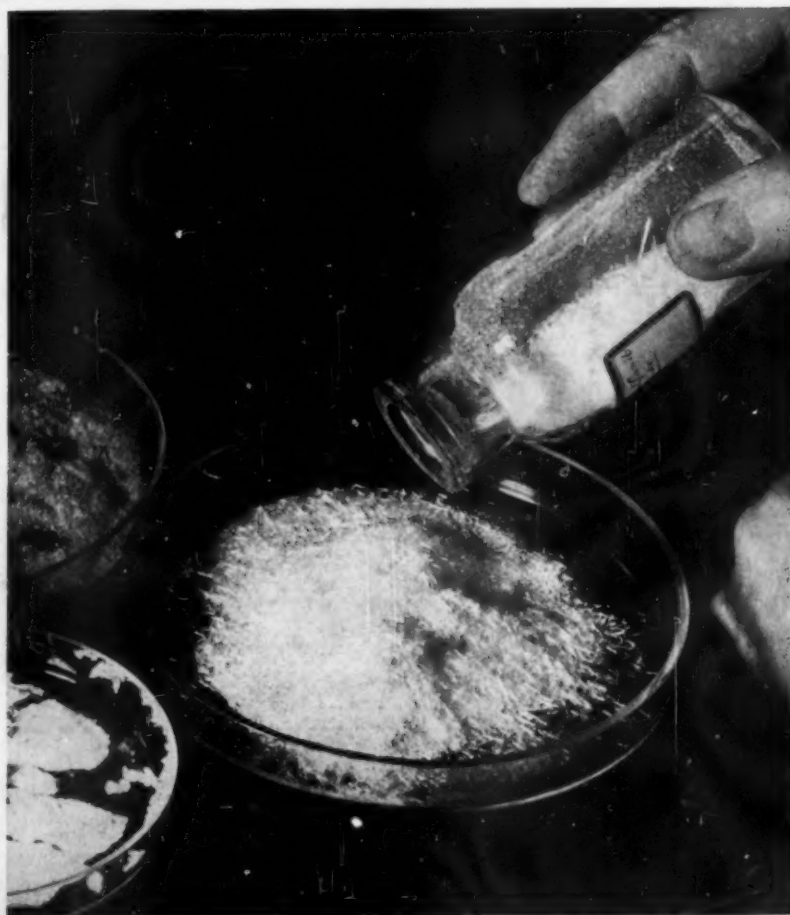


TECHNOLOGY DEPT.  
PRICE  
15¢

PUBLIC LIBRARY  
DEC 5 - 1938  
DETROIT

# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •



December 3, 1938

Life-Saver

See Page 362

A SCIENCE SERVICE PUBLICATION

## Do You Know?

There are coal deposits under the ground in nearly three-fourths of Illinois.

Although the Bible names over 100 trees and plants, only six fishes are mentioned.

Three or four goats supply as much milk as an average cow and can be fed on half the cow's rations.

Chrysanthemums have been bred in China for 2,000 years; in the United States for less than 150 years.

Government scientists believe that cotton has a future in house construction, notably in roofing and wall materials.

Dutch brick and English brick used in colonial Virginia homes did not refer to origin of the brick but to the size, Dutch brick being smaller.

Eight thousand Dolly Varden trout have been tagged in Alaska, in an effort to find out how seriously these fish menace salmon eggs and young salmon.

A process for making synthetic resin articles luminous has been announced in England; and its use during black-outs in air raids is being given special study.

At the time of the recent radio broadcast drama of an invasion from Mars, that planet was about 223 million miles from the earth; at times Mars is within 35 million miles of us.

## SCIENCE NEWS LETTER

Vol. 34 DECEMBER 3, 1938 No. 23

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 2101 Constitution Avenue, Washington, D. C. Edited by WATSON DAVIS.

Subscriptions—\$5.00 a year; two years \$7.00; 15 cents a copy. Ten or more copies to same address, 5 cents a copy. Back numbers more than six months old, 25 cents.

Members of the American Association for the Advancement of Science have privilege of subscribing to SCIENCE NEWS LETTER at the reduced price of \$3 per year. Applications for this privilege should be accompanied by privilege card obtained from the Permanent Secretary, A.A.A.S., Smithsonian Institution Building, Washington, D. C.

In requesting change of address, please give your old address as well as the new one, at least two weeks before change is to become effective.

Copyright, 1938 by Science Service, Inc. Reproduction of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, maga-

zines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service.

Cable address: Scienserve, Washington.

Entered as second class matter at the post-office at Washington, D. C., under the act of March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark. U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature and in the Engineering Index.

Advertising rates on application. Member Audit Bureau of Circulation.

SCIENCE SERVICE is the Institution for the Popularization of Science organized 1921 as a non-profit corporation, with trustees nominated by the National Academy of Sciences, the National Research Council, the American Association for the Advancement of Science, the E. W. Scripps Estate and the journalistic profession.

Board of Trustees—Honorary President: William E. Ritter, University of California, representing the American Association for the Advancement of Science, J. McKeen Cattell, Editor, Science, Garrison, N. Y.; Henry B. Ward, University of Illinois, Urbana, Ill.; Edwin G. Conklin, President, American Philosophical Society, Philadelphia, Pa. Representing the National

## QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in SCIENCE NEWS LETTER are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.

### ANTHROPOLOGY

How will the people of the future compare with us in size? p. 366.

### CHEMISTRY

For what sort of goods do scientists depend largely on Germany? p. 359.

Who first discovered a vitamin? p. 360.

Why is the new catalytic cracking process considered important? p. 356.

### CHEMISTRY-BOTANY

How can roses be made blue? p. 356.

### GEOPHYSICS

What do the sun and moon have to do with earthquakes? p. 361.

### MEDICINE

What 14 diseases have been cured by sulfanilamide? p. 362.

What is the carrier of the St. Louis type of sleeping sickness? p. 361.

What makes arteries harden? p. 364.

Why is housing important in the prevention of rheumatic fever? p. 364.

### PHYSICS

How is sand to be of use to physicists? p. 358.

What is a neutretto? p. 357.

### POPULATION

How does the constitution of the Jewish population in Germany differ from others? p. 361.

Why are empty spaces no solution to the problem of the Jews? p. 358.

### PSYCHIATRY

How many Americans will be crazy in 1960? p. 366.

What indicates that Moses might not have been a Jew? p. 360.

What is meant by "Continental Security"? p. 355.

### PUBLIC HEALTH

What are some of the dangers of the Christmas season? p. 360.

What virtue has been found in sniffly colds? p. 358.

### SOCIOLOGY

What situation hinders return to disarmament? p. 356.

### TECHNOLOGY

What happens to rayon threads before they are wound on the bobbins? p. 355.

A 12-ton cruising airport shop, which can be moved to the scene of an airplane crash to make needed repairs, has been designed.

In order to exhibit rare orchids in the Venezuelan exhibit at the New York World's Fair, flowers will be flown from Venezuela every three days.

Hookworm in certain parts of the South creates a vicious circle, in that the disease affects the victims psychologically, making them slow to adopt new ideas of sanitation which would control the malady.

Ointments and lotions for treating skin diseases should be skin-color, is the belief of two scientists who have developed formulas for this purpose.

A fort and stone houses have been excavated in Limerick County, Ireland, showing the type of houses built there during the Viking period, about 800 A. D.

An American-English dictionary containing every known word that has originated in the United States since 1607 is being compiled at the University of Chicago.

Academy of Sciences, W. H. Howell, Vice-President and Chairman of Executive Committee, Johns Hopkins University, Baltimore, Md.; R. A. Millikan, Director, Norman Bridge Laboratory of Physics, California Institute of Technology, Pasadena, Calif.; Harlow Shapley, Director, Harvard College Observatory, Cambridge, Mass. Representing National Research Council, C. G. Abbot, Secretary, Smithsonian Institution, Washington, D. C.; Harrison E. Howe, Editor of Industrial and Engineering Chemistry, Washington, D. C.; Ross G. Harrison, Director, Osborn Zoological Laboratory, Yale University, New Haven, Conn. Representing Journalistic Profession, John H. Finley, Editor, New York Times; J. Edwin Murphy, Managing Editor, Baltimore Evening Sun, Baltimore, Md.; O. W. Riegel, Director, Lee School of Journalism, Washington and Lee University, Lexington, Va. Representing E. W. Scripps Estate, Harry L. Smithton, Treasurer, Cincinnati, Ohio; Warren S. Thompson, Miami University, Oxford, Ohio.

Staff—Director, Watson Davis; Writers, Frank Thone, Emily C. Davis, Jane Stafford, Marjorie Van de Water, Robert Potter, Leonard H. Engel; Correspondents in principal cities and centers of research. Photography: Fremont Davis; Librarian: Minna Gill; Sales and Advertising: Hallie Jenkins, Austin Winant, Howard Bandy.

PSYCHIATRY—POLITICAL SCIENCE

# Psychiatrists Offer Program For "Continental Security"

Urge Aloofness From Foreign Quarrels as Protection From "Paranoiac Creeds"; Propose Fund for Research

AMERICAN psychiatrists entered the lists today in defense of "peaceful unity and democracy" on this side of the oceans as their answer to the present state of world madness.

Under the guidance of Prof. Harold D. Lasswell, widely known University of Chicago political psychologist and member of the faculty of the William Alanson White Psychiatric Foundation, they present "Continental Security," a program that calls for freedom of science, overthrow of "monopolism" and the postponement of war. It is published as the first act of a new department of political psychiatry in the journal, *Psychiatry*.

"Progression towards a world democracy has ceased," the journal declares in offering the program. "The partition of Czechoslovakia and the coincident sinking of Britain and France from premier roles in world politics destroys our vestigial hopes of collective security in the world today. The spread of democratic ideals and representative institutions has been checked.

"Paranoiac creeds of racial and other differences are the order of the day. They rationalize the barbarian ruthlessness of ruling cliques in the totalitarian states, but they menace the people everywhere."

## Psychiatry Has Role

As physicians to the ill minds of humanity, the publications committee of the scientific journal, *Psychiatry*, explains in an accompanying editorial that psychiatry as a science "has a basic role in making sense of human affairs, individual and collective."

The program is directed toward maintaining continental independence and "remaining aloof from the quarreling states of the European, Asian and African continents." It proposes the overthrow of "monopolism" because it breeds disastrous crises and insecurity and leads to dictatorship. It urges postponement of war in order to preserve free inquiry and initiative.

"A free society can quicken the pace

of science and technology and leave the regimented states behind. Military-bureaucratic states are muscle-bound to the technology of yesterday, which was born of the science of day before yesterday.

"Free states can nurture the science and technology of tomorrow. In this freedom there is strength."

"Continental Security" recommends the establishment of a ten billion-dollar (cost of World War) war-loss memorial fund from private donations for study of foreign propaganda and economic contacts, to encourage civic education and scientific research.

"Militaristic states are conceived in hate and nurtured on conspiracy," declares the pamphlet in which the program is published.

"They gain temporary victories by

hurriedly gathering the fruit of past freedom. But they destroy themselves. When they regiment muscles, they regiment minds. When they regiment minds, they fetter science. When they fetter science, they sterilize technology. They thicken armor but they weaken mind. And mind invents the means of crushing armor.

The insight of the psychiatrist is combined with the technique of the propagandist and the new art of pictorial statistics in the presentation of this new program.

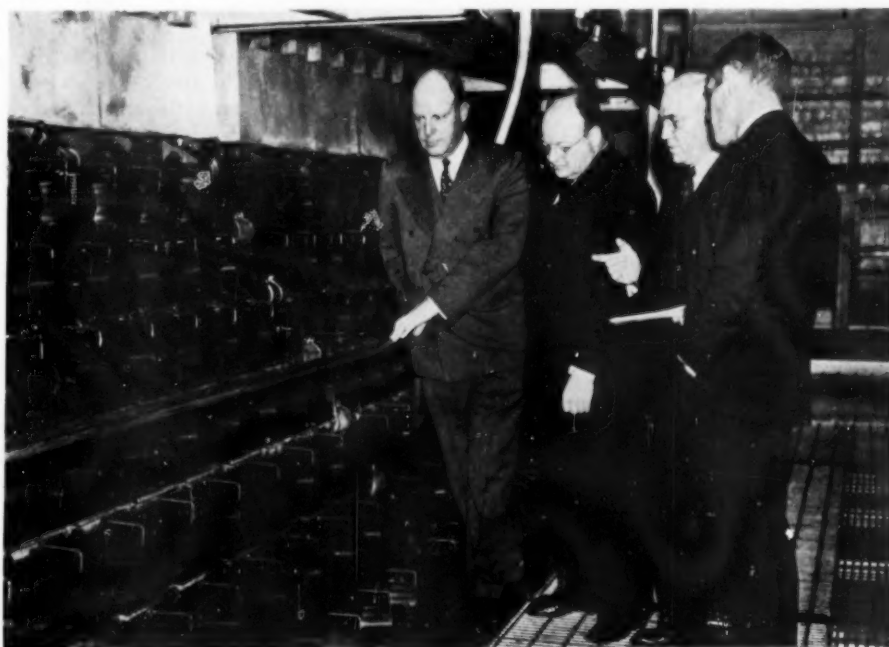
A novel feature of the pamphlet, however, is an accompanying analysis which explains completely the propaganda technique used in its presentation, the emotional appeals used, the purposes of the propagandist behind the selection of slogans, arguments, and use of "charged" words.

*Science News Letter, December 3, 1938*

## TECHNOLOGY

# Continuous Process For Producing Rayon Now In Use

A NEW continuous process for the production of rayon, still America's fastest growing textile fiber, has gone into large-scale commercial use with the



## NEW RAYON PROCESS

In a three-and-a-half-acre room in a windowless plant, liquid rayon will be transformed into yarn ready for the textile mill in a single continuous process. Watching the yarn pass over reels during the process are G. P. Torrence, vice president of the Rayon Machinery Corp., Watson Davis, director of Science Service, Dr. W. E. Wickenden, president of Case School of Applied Science, and Hayden B. Kline, vice president of Industrial Rayon Corp., visitors and hosts at the opening of the plant.



opening of a huge plant by the Industrial Rayon Corporation at Painesville, Ohio.

Starting with cellulose sheets at the top, the process finally winds completely finished rayon threads, ready for delivery to textile mills, on bobbins set low on the floor. Differing from conventional procedure, the rayon is not spun and wound on the bobbins immediately after being formed, but is bleached, shrunk, prepared, dried and twisted before being wound.

Six years of research are represented in the plant, built at a cost of \$11,500,000. A pilot plant has been in operation successfully for two years. Fourteen acres of floor space have been provided in the buildings of the windowless, air-conditioned plant. Daylight enters the factory through glass wall panels and monitors of glass block, 371,000 of which have been used in the factory, the laboratory, the power house and auxiliary structures which together represent the largest glass block installation on record.

Special machinery for handling the rayon in this new fashion was developed by a subsidiary of the company. More exact conformation to specifications is one of the advantages claimed for the process.

*Science News Letter, December 3, 1938*

#### SOCIOLOGY

### How to Disarm Eventually Is Major World Problem

**L**OOKING beyond the present quickening of the pace of rearmament throughout the post-Munich world, there are those who are already asking what will be done with the energies and time of the millions of munition makers when and if the making of war instruments has reached saturation.

War itself may answer the question sooner or later by reducing war munition stocks and increasing the demand. But this would be a disastrous answer. The fact of the matter is that a rearming world is faced with a dilemma! War or the eventual return to an armed peace that allows an increase in consumers' goods which the economic system may have difficulty in assimilating.

For several years the nations of Europe have turned industrial plants into war materials factories. Now Great Britain and France are speeding this movement feverishly in the face of capitulation before Germany followed by greater threats from the Hitler regime.

Whether the peoples of the world can

stand the increasing financial burden and emotional strain is a query raised by a keen international observer, Dr. Stephen Duggan of the Institute of International Education. If this does not cause war, Dr. Duggan sees the return to peace through disarmament menaced by men left without work or governments that choose to go to war rather than face the domestic evils of disarmament.

The International Institute of Intellectual Cooperation, a League of Nations subsidiary, has been trying to foresee the consequences of a stoppage in the manufacture of instruments of war. But

such peaceful legal reasoning may not prevail in the face of revolution at home and fighting abroad.

Little possibility of disarmament is seen by Dr. Duggan until there prevails a greater belief in the justice of the present distribution of raw materials in the world. Of the 24 minerals and raw materials necessary to adequate modern life, 18 are in the control of the so-called Anglo-Saxon countries. Dr. Duggan believes that other nations will not continue to be content with such a condition.

*Science News Letter, December 3, 1938*

#### CHEMISTRY

## Catalytic Cracking Process Considered Very Important

### Makes Possible the Production of Gasoline Without Production of Oil and Other Derivatives of Crude Oil

**A**NNOUNCEMENT of a radically new refining process held to be of the greatest importance to the entire petroleum industry in that it makes possible independent production of gasoline, with or without simultaneous production of oil and other petroleum derivatives from crude oil, was made to the American Petroleum Institute.

Known as the Houdry catalytic processes for petroleum-hydrocarbon refining, the new group of methods was described in a paper presented by four oil technologists, including Eugene Houdry of the Houdry Process Corporation, whose name the process bears.

The process represents a distinct step forward, they said, for an industry faced with widely variant seasonal demands. Formerly whenever a certain amount of gasoline was made from a given crude oil, a certain amount of other products, for which no immediate market was to be had, was also produced. Now the petroleum refiner can produce only gasoline if that is his market at a given period of the year, they explained.

Associated with Mr. Houdry in the development work and in the presentation of the paper were Wilbur F. Burt, of the Socony-Vacuum Oil Company, A. E. Pew, Jr., of the Sun Oil Company and W. A. Peters, Jr., of E. B. Badger and Sons Company. Refining operations under the processes, now covered by 96 patents, were developed by Socony-Vacuum, the Sun Oil Company and the Houdry Process Corporation.

Economical meeting of the growing need for high octane fuels as well as ability to operate from a greater variety of crudes than has hitherto been possible are additional advantages claimed for the processes, now in use in three cracking units. Ten additional large units are in construction and will be completed in 1939.

The process is essentially a method for breaking down the large molecules of crude oil and trimming or building smaller molecules to the right size and type to make up the desired fuel. Catalytic agents are used to encourage necessary chemical reactions that either would not occur or would occur extremely slowly were they not present.

*Science News Letter, December 3, 1938*

#### CHEMISTRY—BOTANY

### Blue Roses Possible In Cornell Research

**S**TUDIES in the colloidal chemistry producing color changes in the flowers and leaves of plants, at Cornell University, are leading scientists to suspect that it may be possible some day to create a blue rose.

Intriguing is the study of the color changes in late autumn red leaves and the colors of red and blue flowers. These color pigments are known chemically as anthocyanin pigments. Over their origin chemists have had many a controversy.

In a report to the Journal of the

American Chemical Society, Prof. Wilder D. Bancroft and John E. Rutzler, Jr. of Cornell point out that the anthocyanins vary in color from red or purple through blue and green to yellow. The specific shade in any particular plant appears to depend on the acidity of the sap in the plant.

The development of anthocyanins appears to be due to plant enzymes. If you could inactivate the enzymes without killing the leaves it would be possible to prevent the development of red in leaves. Or, in contrast, if the Norway maple could get the proper enzyme its leaves would turn red in the fall.

Expose a red flower to ammonia vapor, state the scientists, and the blue in

the flower is apt not to be permanent in the absence of a stabilizer. If it changes fairly rapidly to yellow one gets no blue but only green. If it changes very rapidly to yellow one gets neither blue nor green. The leaves of a poinsettia are a case of this.

It seems probable, the scientists add, that all blue flowers contain a color-stabilizer. Sodium chloride, sodium nitrate and alum solutions are reported to stabilize the blue in particular cases.

No systematic study of other stabilizers for blue in flowers appears to have been made, but efforts seem worthwhile in this direction for out of it would come, conclude the scientists, "the production of blue roses."

*Science News Letter, December 3, 1938*

#### PHYSICS

## High Altitude Research Finds Evidence For Neutretto

**This Newest Particle Has Mass and Other Properties Of Mesotron But Is Without Any Electrical Charge**

**H**IGH altitude research at 14,200 feet has led to the identification of what physicists believe will be still another atomic particle known as the neutretto. The newest particle is without electrical charge and has the mass and other properties of the heavy electron.

The latter has been known by a variety of names, including barytron. Recently Nobelist Dr. Carl D. Anderson and Dr. Seth D. Neddermeyer of California Institute of Technology suggested still another name—the mesotron—for the heavy electron, in order to bring some order out of the chaos of nomenclature for this intermediate mass particle. (See SNL, Nov. 26)

Mention of the discovery was made in the report of Francis R. Shonka of Chicago and De Paul Universities to the meeting of the American Physical Society. Mr. Shonka's report was introduced to the Society by Prof. Arthur H. Compton, University of Chicago Nobelist.

The new research, leading to the discovery of the particle, consisted of measuring cosmic ray intensity at high altitudes when various thicknesses of lead were placed in several selected positions about the four Geiger-Muller detecting tubes.

Great thicknesses of lead were required to bring out the maximum ob-

served effects. Says the Shonka report:

"In view of the great thickness of lead required to give the maximum effect, these non-ionizing particles pro-

ducing secondary barytrons (heavy electrons) must be much more penetrating than photons. This high penetrating power suggests their identification with the neutrettos (neutral particles having mass and other properties similar to the barytron) postulated by Heider."

### Ray Variations Explained

**W**ORLD-WIDE variations of cosmic ray intensity can be explained by the presence of a great ring of electricity whirling around the earth, far out in space.

This ring of electricity is the same mechanism which can account for the drop of cosmic ray intensity that occurs during severe magnetic storms, said Dr. S. E. Forbush, of the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, to the Society.

Electrical rings, Dr. Forbush added, were first postulated by the Norwegian scientist Dr. Carl Stormer to explain certain characteristics of the aurora.

The magnetic effect of the current in this ring of electricity, plus the magnetic effect of the earth's permanent magnetic field, would be expected to have a result equivalent to an increase in the earth's magnetic field. Such an increase in turn, would account for a decrease in cosmic ray intensity.

World-wide cosmic ray variation, Dr.



#### WITH A SMILE

*This extinct reptile, new to science, was probably not quite so friendly a creature as the artist here presents him in a drawing based on the fossil skull. The horned crocodile was discovered by the Field Museum Paleontological Expedition to Colorado, and is described in a new publication by Karl P. Schmidt, curator of reptiles and amphibians. The age of the reptile is given as paleocene, which makes it approximately 55 million years old.*

Forbush explained, can be accounted for by the radius of the electrical ring of current and by the amount of current flowing in it.

### Cosmic Rays' Origin

A COMPARISON of all available data on cosmic ray intensities in relation to star, or sidereal, time shows that cosmic rays apparently originate within the same galaxy of stars as that which contains the earth and the sun, Prof. A. H. Compton and Dr. P. S. Gill of the University of Chicago told the meeting.

There is no evidence, they said, to indicate that the earth is moving appreciably with respect to the source of cosmic rays as would be the case if the rays came from outside the local galaxy.

*Science News Letter, December 3, 1938*

#### POPULATION

### Removal to Empty Places No Solution For Jews

COLONIZING exiled German Jews in the world's empty lands is not regarded as an adequate answer to the problem presented by the Nazi pogrom by population scientists gathered for the meeting of the American Philosophical Society.

Two leading population experts, Dr. Warren S. Thompson, director of the Scripps Foundation for Research in Population Problems at Miami University, and Dr. Frank Lorimer, secretary of the Population Association of America, when interviewed separately expressed almost identical views. In a word, they said it would be sheer human waste to take these highly urbanized people and dump them in empty places where their training could find no outlet under the pioneer conditions that would necessarily prevail.

"They are city people and the only places to which they can be successfully transplanted are cities," was the consensus of opinion expressed. Many are highly trained professionally, others are clerical workers or business men.

Civilization should find niches in already established centers into which they can fit rather than shoving all these neatly squared pegs into round holes.

It was felt that considerable numbers of the exiles could be absorbed into the American population to this nation's great advantage. But they recognized the difficulties of lifting quota limits and possibly of overcoming local opposition, especially while there is still much unemployment in the land.

*Science News Letter, December 3, 1938*

#### PUBLIC HEALTH

## Winter Colds May Protect Against Infantile Paralysis

THE SNIFFLY colds that plague you all winter may be protecting you against "sleeping sickness," or encephalitis, and infantile paralysis—at least till summer comes and banishes the sniffles.

The possibility of this protective action of colds and other wintry infections of the breathing apparatus was discovered by Dr. Charles Armstrong of the U. S. National Institute of Health.

The discovery is important in two ways: It may explain why "sleeping sickness" and infantile paralysis, unlike scarlet fever, influenza and diphtheria, come in summer instead of winter; it suggests a new approach to the problem of influenza prevention.

Dr. Armstrong made his discovery in studies of mice, and he is careful to point out that since we are men (or women) and not mice, the findings may not hold for us, but they are important enough for further study.

It appears that the more or less constant presence in our noses all winter of germs of colds and related ails causes a mobilization of large numbers of germ-fighting white blood cells in the nasal tissues.

Although these germ-fighters are mobilized to fight cold germs, they may also be able to check any invasion of "sleeping sickness" or infantile paralysis viruses. With the return of warm

weather and the decrease in colds, influenza and the like, the armies of white blood cells presumably are demobilized, leaving the nasal tissues less well-guarded and giving the encephalitis and infantile paralysis viruses a chance to get past the barriers and travel along the nerves to the brain.

Dr. Armstrong found this mechanism in the case of mice—not men as yet, nor even monkeys—by injecting ordinary germs into mouse noses and following up this semi-vaccination with injections of "sleeping sickness" virus. The semi-vaccination worked not only to protect the mice against encephalitis but it also protected against small doses of influenza virus.

The results in the 'flu studies suggest, Dr. Armstrong states, either that there was a tendency for the influenza virus to be prevented from multiplying, for it to be neutralized or destroyed in the nasal passages or, more probably, for it to be prevented somehow from spreading to the lungs of the mice.

Dr. Armstrong would not say that this gave any hope of a new method for preventing influenza. Further investigations seem likely, although Dr. Armstrong himself has had to interrupt these studies to investigate the new health menace of horse-acquired encephalitis.

*Science News Letter, December 3, 1938*

#### PHYSICS

## Electrified Sand May Be Used In Atom Smashers of Future

A SWIFT-FLYING spray of electrified sand may be used in the future to build up the enormous electrical voltages needed for smashing the atom.

This is the suggestion of Dr. W. H. Wells, in charge of nuclear research at Westinghouse Research Laboratories. (*Journal of Applied Physics*)

Although Dr. Wells is himself constructing a giant electrostatic type of atom smasher, he foresees the day when a size limitation will be reached because of the increasing length of the belts which carry many small electrical charges up to

giant high-potential storage spheres.

If belt-type voltage generators ever reach this limit, Dr. Wells suggests, it will then be possible to carry up the electrical charges by putting them on grains of sand and blowing this man-made sandstorm against a metal collector at the high voltage terminal.

The sand could be charged by passing it through an ionized region just as is done now in the electrical type of smoke precipitator devised by Dr. F. G. Cottrell.

*Science News Letter, December 3, 1938*



## CHEMISTRY

# American Chemical Industry No Longer Relies on Europe

**Chemical Foundation Was Organized To Meet Problem Brought About by World War; No Fear of Famine Now**

**T**HE OUTBREAK of war in Europe would find American industry, which was hard hit at the start of the last World War by a famine in chemicals and other technical materials made then only in Germany, so nearly self-sufficient regarding major chemical products that no serious crisis would result, a survey by Science Service disclosed.

American scientists, however, still dependent upon German technicians for the highest grade optical goods and scientific equipment, particularly of specialized types, might find their sources of vital apparatus dried up overnight.

Leading import into the United States from Germany last year was potash, to an amount worth \$6,668,000, an increase of more than \$4,000,000 over the previous year. But, should war make it necessary, the United States could get along readily on American supplies.

Today the United States has one of the most powerful heavy chemical industries in the world, producing a wide

variety of synthetic organic compounds ranging from dyes to explosives. The industry could be expanded to meet our own wartime needs; it already meets American demand and has some left over for export to other countries.

That was not the case at the start of the first World War, however. At that time the world's synthetic dye industry was almost entirely in German hands. Utter confusion resulted in the United States, partly because German patents contained only part of the necessary formulas or else formulas that were deliberately misleading. In addition to that, American chemists lacked the necessary experience for immediate application of such accurate information as they could get.

The Chemical Foundation was organized to meet this problem and to make German patents available to American industry.

Cameras worth \$3,372,000, optical glass worth \$318,000, and photographic

paper worth \$444,000 and other optical goods worth \$746,000 were brought into the United States during 1937 from Germany.

Much of this equipment represents goods that compete directly with American products of similar grade, but a not inconsiderable portion consisted of instruments and materials it would be virtually impossible to duplicate in this country. Included in this last category, for example, are the planetaria which have been installed in several American cities by Carl Zeiss during the last few years.

Specialized laboratory apparatus, particularly in the glassware field, are in many instances made only in the Reich. These would be difficult, if not impossible, to duplicate either in this country or elsewhere in Europe. America does not import appreciable quantities of scientific equipment from other countries.

At one time the United States was dependent upon Germany for many of its better surgical instruments, but the situation has changed in recent years. Today, if America had to go to war or were blockaded, American soldiers would be treated with a completely adequate variety of American-made instruments.

A considerable quantity of medicinal preparations still come from Germany and from what used to be Austria. One such product is Prontosil, the first sulfanilamide compound. But American chemists have been making other effective varieties of this remarkable new curative agent. A temporary shortage in a few medicinals might be felt, but it probably would not last long.

Palm-kernel oil worth \$4,644,000, used in the manufacture of lacquers and for other purposes, was sent to the United States from Germany last year.

*Science News Letter, December 3, 1938*

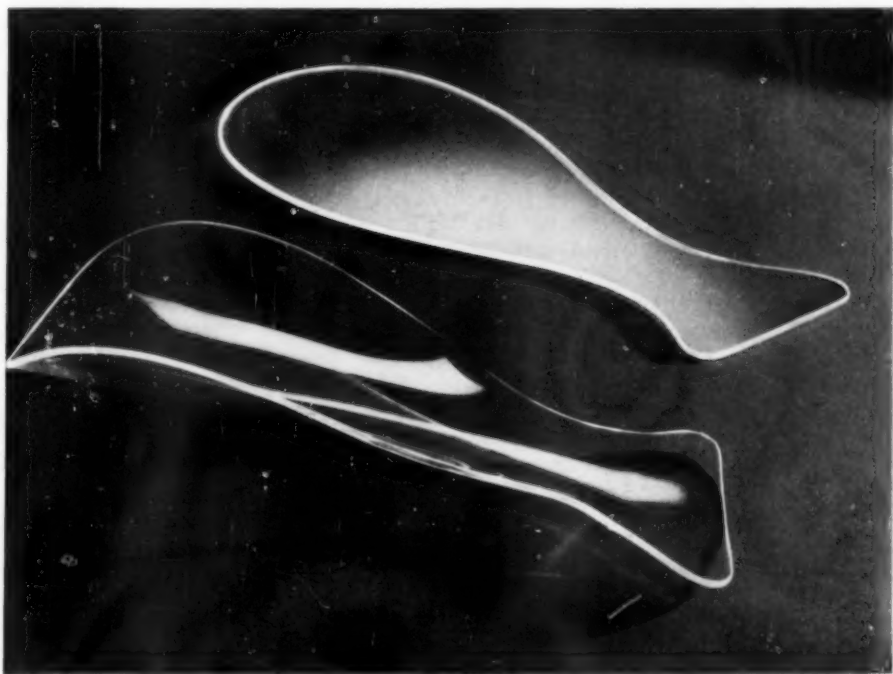
## CHEMISTRY

## Transparent Splint Among Prize Winning Plastics

**A** FISH lure with an electric light inside to make it glow, a transparent molded splint through which a doctor can see a broken arm, three-pronged clothes-pins, and transparent oil cans which show when they are about to run dry are among the prize-winning designs in the Third Annual Modern Plastics Competition.

Translucent venetian blinds, the "radio nurse" loudspeaker system and a new type of sun goggles were other winners.

*Science News Letter, December 3, 1938*



TRANSPARENT SPLINTS

## PSYCHIATRY

**Freud Says Moses May Not Have Been a Jew**

**M**OSES, great leader of the Jewish people, was himself probably not a Jew. This suggestion comes from Prof. Sigmund Freud, Jewish exile from Vienna where he founded psychoanalysis and now in London.

Evidence from language study that the name Moses is not Hebraic but Egyptian in origin is cited by Prof. Freud in raising the question of whether the Jewish hero was not actually an Egyptian. He adds evidence from a study of various birth-adoption legends which indicates that in these stories the first family—the one from which the hero is cast forth—is always the fictitious one. The second or foster family in the story is always the real one in fact.

That such evidence will generally be considered as conclusive, Prof. Freud regards as unlikely, however.

Prof. Freud's scientific paper, originally published in the *International Journal of Psycho-Analysis* is abstracted in *Psychiatry*, (August).

*Science News Letter*, December 3, 1938

## PUBLIC HEALTH

**Making Christmas A Safe and Sane One**

**H**EALTH authorities have taken to urging that Christmas as well as the Fourth of July be made safe and sane. Dangers particularly stressed are lighted candles on Christmas trees, which have caused many disastrous fires, and toys that may seriously injure children, especially very small children.

To show how dangerous some of the toys given to children as Christmas gifts may be, Dr. Huntington Williams, Baltimore's Commissioner of Health, tells a story about an air rifle given to a little six-year-old boy. The child put a nail into his air rifle, shot it off and killed a little friend, for the nail went into the second little boy's ear.

These very air rifles, ordinarily considered quite harmless, are said, when put in the hands of youngsters, to cause more blindness and injuries to children than all the whole category of high-powered hunting rifles.

One of the things to consider in buying toys for children, at Christmas or any other season, is the age of the child for whom the gift is intended. Few persons would be so careless as to give knives, matches or scissors to babies or

toddlers. Yet many persons forget that a child must be old enough to have a sense of responsibility and caution before he can be safely given such playthings as tool sets, chemical sets and toy cookstoves.

Dr. Williams related the case of a four-year-old girl whose dress was set on fire by a toy electric cookstove with the result that she was burned to death, and another case of a little girl also fatally burned when her small brother tossed a match into a pan of alcohol that was part of a chemical set the children had just received.

Toy balloons may be dangerous if they are filled with hydrogen, which is a highly inflammable gas.

Even such a harmless thing as a celluloid duck can cause tragedy, as shown by the case of a 14-months-old baby who was badly burned when he pushed such a toy into a gas heater near him.

*Science News Letter*, December 3, 1938

## ENGINEERING

**Wax "Beauty Pack" Takes Feathers From Turkeys**

**A**MERICA's holiday turkeys, more of them this year than ever before, will come to the table cleaned by a novel and efficient waxing and de-feathering method. The method is one of applied science's most important recent gifts to the poultry industry.

As many as 300 cleaned turkeys can be turned out in an hour, ready for oven or skillet, by the new method. In one installation it takes each bird 53 minutes to go through the entire stripping process, but with him go hundreds of other birds.

The process starts with the suspension of the bird by his feet from a conveyor. As the bird starts through the "mill," tail and wing feathers and some of the larger body feathers are removed by hand.

Next the bird enters a drying tunnel until the remaining feathers are entirely dry. The bird is then mechanically dipped into wax vats. The belt then carries the future dinner into a tunnel where cold water is sprayed on the wax coating to harden it. Employees then strip off the wax, which carries with it the feathers. Inspection to guarantee that pin feathers have been removed is followed by singeing.

The wax used is reclaimed by heating and run through a rotating apparatus that separates wax and feathers by centrifugal force.

*Science News Letter*, December 3, 1938

**IN SCIENCE**

## CHEMISTRY

**First Vitamin Discoverer Given Belated Recognition**

**C**REDIT for the first discovery of a vitamin is given nearly 40 years after the discovery, to the true discoverer of bios, Professor Emeritus Manille Ide, of the University of Louvain, Belgium. The fact that it was Prof. Ide and not his assistant, Dr. E. Wildiers, who actually discovered this substance, is reported by Dr. Roger J. Williams, of Oregon State College. (*Science*, Nov. 18)

Bios is the substance that is responsible for stimulating growth of yeast, as the more familiar alphabetized vitamins stimulate growth in man and other animals.

Dr. Wildiers, generally credited with discovering bios, was, according to Dr. Williams who investigated the matter while in Europe last summer, "an immature undergraduate medical student of comparatively mediocre attainments at the University of Louvain" who helped Dr. Ide with the research leading to discovery of bios. Dr. Wildiers, who never did any more research after finishing medical school, got credit for the discovery because Dr. Ide permitted him to use the results of the research in a competition thesis on which Wildiers' name, but not Ide's appeared. Dr. Wildiers is now dead.

*Science News Letter*, December 3, 1938

## ZOOLOGY

**Cat Has Internal Organs All "Wrong Side To"**

**A**TOTALLY reversed cat, with all its internal organs "wrong side in," was found in a lot of dead tabbies purchased for laboratory study at the Pennsylvania College for Women. Lungs, kidneys, veins and arteries and all parts of the digestive tract were normal in size and shape but so situated that descriptions for the left side fitted right perfectly and vice versa.

Miss Helen A. Wragg, who reports (*Science*, Nov. 18) the "mirror-image" cat, suggests that the animal may have been one of a pair of identical twins.

*Science News Letter*, December 3, 1938



# NOE FIELDS

## POPULATION

### Large Proportion of Aged Among Jewish Refugees

**C**OMPLICATING the problem of re-colonizing the Jewish refugees from Germany is the fact that unusually large numbers of them are old people for whom adaptation to new ways of life will be extremely difficult, it is pointed out by Dr. Christopher Tietze, population expert of Johns Hopkins University's School of Hygiene and Public Health.

This group has a larger proportion of old people than has the general population, and there are also disproportionate numbers of city dwellers and small shop keepers, Dr. Tietze says.

The typical member of the group has little education and no familiarity with foreign languages.

These old people, used to city ways and keeping a small shop, would be most unlikely to adapt to life in an agricultural community in a foreign land and under completely new climatic conditions.

To expect it would be "like believing that you could successfully dig a ditch with a microscope," Dr. Tietze said.

*Science News Letter, December 3, 1938*

## MEDICINE

### Mosquito Seen as Carrier of "Sleeping Sickness"

**M**OSQUITOES are under heavy suspicion as being the agents that spread "sleeping sickness" of the type known as St. Louis encephalitis which was epidemic in 1937 and 1933.

A new study, reported by Drs. A. E. Casey and G. O. Broun of St. Louis University (*Science*, Nov. 11) seems to confirm previously held suspicions of the role of the mosquito in spreading this disease.

Almost all "sleeping sickness" cases in the St. Louis area, the doctors have found by new map studies, occurred within a mile or one-half mile of streams where weeds, garbage and tin can dumps, open sewage and ponds are found. All of these conditions provide good breeding grounds for mosquitoes.

Areas more than one mile from such regions were very slightly affected by the encephalitis epidemics.

Making the mosquito carrier case even stronger, the St. Louis doctors point out that the same areas of the city were involved in both epidemics and that in both epidemics the predominance of the cases was in those areas in which the disease first appeared.

"Every known feature of its epidemiology," they state, "is common to the mosquito-borne diseases, such as yellow fever, malaria, and equine encephalomyelitis."

This last is the horse equivalent of "sleeping sickness" which has been recently discovered to afflict humans and is known to be carried from horse to horse by mosquitoes.

The disease does not seem to be spread by milk, water or food, nor are congested housing, prevalence in cold season, and multiple cases in the same family or household features in this ailment that could account for its spread, as they do for other diseases.

*Science News Letter, December 3, 1938*

## ENTOMOLOGY

### Two New Devices Aid in War Against Plant Enemies

**T**WO new devices developed at Rutgers University are proving effective in the endless war that man must wage against the insects and other enemies of the plants he grows.

One is an electric soil pasteurizer, invented by Prof. W. C. Krueger of the New Jersey College of Agriculture. Built somewhat after the manner of an old-fashioned hand printing press, it thrusts wedge-shaped metal strips into the soil in the shallow boxes, or "flats," in which greenhouse men start their tender plants. The current generates heat, which effectively rids the soil of micro-organisms, insects, parasitic worms, weed seeds and all other harmful life forms. A six to eight minute treatment suffices.

The second apparatus, known for convenience as the "hot box," is intended to rid flowering plants of a particularly troublesome creeping pest, the cyclamen mite. It is simply a solidly built chamber with a tight door, in which the temperature can be raised to a point where the mites are killed, though the plants remain uninjured. The "hot box" is the invention of Dr. Clyde C. Hamilton of the New Jersey Agricultural Experiment Station.

*Science News Letter, December 3, 1938*

## GEOPHYSICS

### Pull of Sun and Moon Seen As Trigger for Quakes

**N**EW evidence that earthquakes are set off by the pull of the sun and moon on the earth, and also by changes in barometric pressure, is offered by Dr. C. D. Perrine of the National Observatory, Cordoba, Spain (*Nature*). He states that prediction of heavy destructive shocks within two or three days can be made by applying his results.

These gravitational pulls from outside the earth do not actually cause the earthquakes, according to Dr. Perrine's interpretation. The rocks are put under a condition of extreme strain, just short of the breaking point, by the earth's own internal forces. Then the outside pulls, or the change in air pressure, relatively slight though they may be, serve as last straws that break the geological camel's back.

Dr. Perrine has made statistical studies of series of great earthquakes, and finds that "approximately 80 per cent. showed preference for times of new and full moon," when sun and moon are exercising their gravitational pulls upon the earth along approximately the same straight line.

*Science News Letter, December 3, 1938*

## AERONAUTICS

### Government Man Patents Automatic Landing System

**A**N automatic system for landing airplanes has been patented by Francis W. Dunmore, National Bureau of Standards scientist.

Including an automatic air speed control, the device, covered by Patent No. 2,133,285, controls the glide of the plane down the radio beams that guide the craft to the airport runway.

Provision is made for the control device to take control of the plane automatically when the radio picks up the runway localizer radio beam at a distance of six or seven miles from the airport. The plane's control surfaces are automatically set in the gliding position and the craft glides in at a controlled speed.

The difference between this and other blind landing systems is that this substitutes an automatic control hook-up between landing beam receiver and the plane's controls for the instruments that tell the pilot whether he is on or off course. The patent is assigned to the government.

*Science News Letter, December 3, 1938*

MEDICINE

# Life-Giving Dye

## Sulfanilamide, Formerly Thrown Away as Waste, Is Effective Against Germs of Fourteen Diseases

By JANE STAFFORD

See Front Cover

**F**OURTEEN major victories over disease within three years—that is the amazing record of a new chemical in today's warfare against germs. And the end is certainly not yet in sight, for fresh victories are reported in almost every issue of medical journals the world over.

The victories have been won with a chemical that was shoveled around a large German dye works for years before anyone suspected its possibilities as a life-saver for thousands of desperately sick patients. It is sulfanilamide.

This chemical was first introduced as Prontosil, a patented, ink-red dye also available in the form of flat white pills. Before many months, it turned out that the curative value of Prontosil was due to one of its chemical constituents, sulfanilamide. The chemists, however, have not stopped at this point. While physicians are using the relatively simpler sulfanilamide with impressive and spectacular success in treatment of many ails, research goes on in the laboratories in the hope of finding a super-sulfanilamide.

Characteristics to be desired in the super-sulfanilamide are greater safety (sulfanilamide is not entirely without danger) and wider usefulness—that is, the ability to conquer still more germ diseases.

### First Childbed Fever

First disease to go down before the onslaught of sulfanilamide—actually they used Prontosil in the first cases—is the childbirth horror, puerperal fever. This dreaded sickness that used so often to make motherhood a death sentence is due to infection. Various germs may cause the condition but fully one-half the cases, and those the ones most often ending in death, are due to infection with a germ called the Beta hemolytic streptococcus.

Sulfanilamide is a peculiarly effective weapon against members of the streptococcus family. A German scientist, Dr. G. Domagk, discovered this when he tried Prontosil for treatment of strep-

tococcus infections in mice. The report of his results started a team of British medical scientists, under the direction of Dr. Leonard Colebrook, to investigate the chemical's possibilities as a remedy for childbed fever due to streptococcus infections.

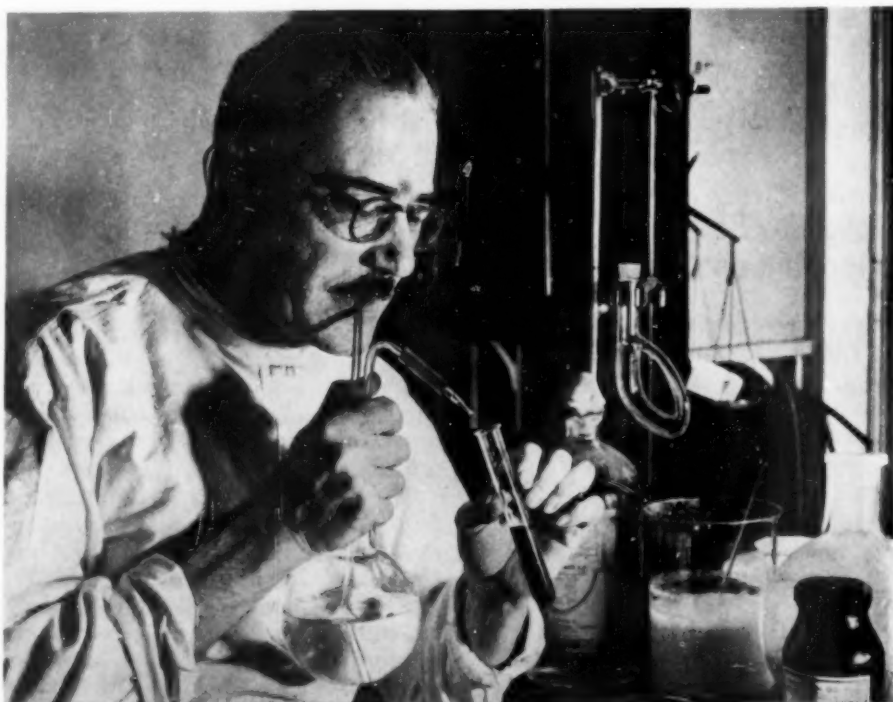
Even though 75 years had passed since Oliver Wendell Holmes, the doctor-poet, and Ignaz Philipp Semmelweis showed that this ailment was due to unclean instruments, dressings and hands of doctors and nurses, too many mothers were still, in 1936, dying of the ailment. The toll was 1,200 mothers' lives every year in England and Wales, and about 4,000 in the United States. Fully five times that number of mothers were suffering serious illness because of this streptococcus infection.

Before Prontosil, there was no sure way of saving these thousands of mothers who got the infection and died in

spite of all aseptic precautions. The first year Prontosil was used under Dr. Colebrook's direction in Queen Charlotte's Hospital, London, very nearly four out of five previously doomed mothers were saved.

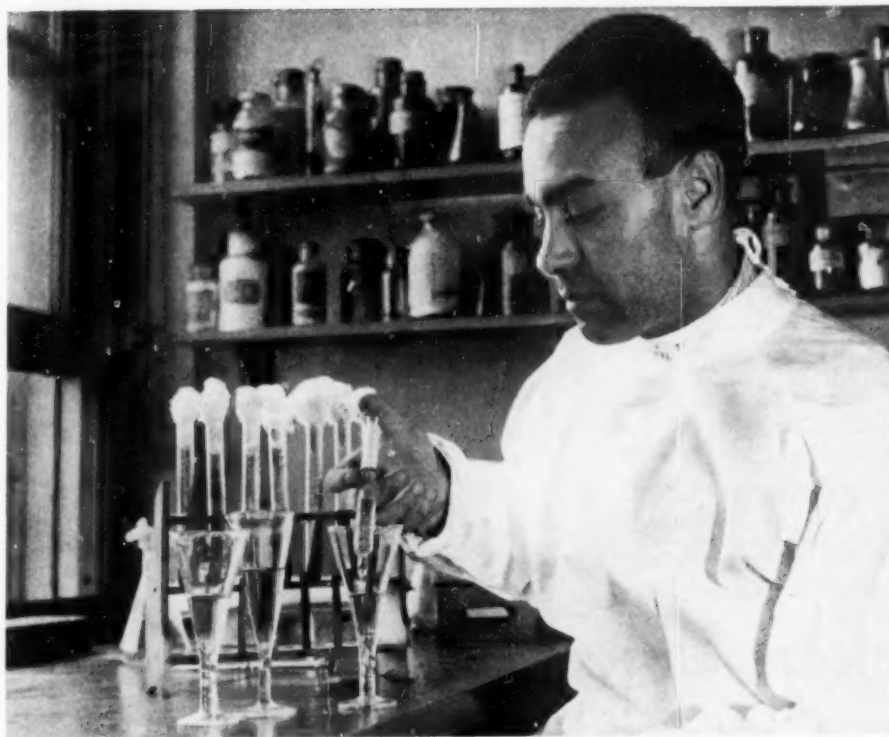
An American doctor, Dr. Perrin Long of the Johns Hopkins Hospital and Medical School in Baltimore, was visiting in England just at the time Dr. Colebrook and associates at Queen Charlotte's were having their first spectacular success with Prontosil. Dr. Long promptly procured some of the drug, brought it back to the United States, and after first testing it on mice, started using it on human patients. Dr. Long, however, did not use it first for childbed fever. He used it to treat patients suffering with erysipelas. This is another streptococcus infection. Like childbed fever, it too has yielded to the onslaught of Prontosil or sulfanilamide.

The streptococcus family is large and menacing. These germs cause septic sore throat, an often fatal infection. They cause septicemia, or blood poisoning.



DR. HUGO BAUER

*This is the chemist half of the Rosenthal-Bauer research team shown here testing one of the new substances he is making. He is one of many scientists looking for a super-sulfanilamide that will cure even more diseases and be safer to use.*



DR. SANFORD M. ROSENTHAL

*The culture of streptococcus germs he is preparing, he will use to infect a set of test mice. Half the mice will be treated with sulfanilamide, the others will not. Streptococcus germs cause many human ills, including blood poisoning and septic sore throat.*

They cause scarlet fever. And they cause the most deadly variety of meningitis. Before sulfanilamide, 99 out of every 100 unfortunate persons who got this streptococcus meningitis died. Now, with sulfanilamide, doctors can save half or more of these patients.

#### Meningitis

Meningitis is an inflammation of the membranes that cover the brain. Most frequently, it is due to infection with another kind of germ, the meningococcus. Before the discovery of sulfanilamide, scientists had developed antimeningitis serums which were fairly successful in treating meningococcic meningitis. Sulfanilamide used with the serum, scientists have reported, gives even better results than the serum alone.

There are many other berry-shaped coccus germs besides the streptococci and the meningococci. Gonorrhea, widespread venereal disease, is caused by a germ called the gonococcus. Reports of sulfanilamide's victories over other coccus infections led a number of physicians to try it in gonococcus infections. Sulfanilamide scored again. Not 100 per cent., but reports from New York City have put its success at as high as 75 per cent. in acute cases and almost 100 per

cent. in those cases that are chronic.

Pneumonia is another coccus-caused ailment. The germs of this disease are called the pneumococci, and there are 32 varieties or types of them. Against one of these pneumonia germs, Type III pneumococci, sulfanilamide has scored another victory.

Besides all these ailments, sulfanilamide has been used successfully to treat cases of gas gangrene; kidney infections; the fourth venereal disease, lymphogranuloma inguinale; undulant fever; choriomeningitis, a disease of mice; and, latest to be reported, brain abscess.

#### Sulfanilamide Successes

Sulfanilamide and drugs derived from it have scored notable successes against 14 diseases:

Puerperal fever; erysipelas; streptococcus meningitis; septic sore throat; septicemia; scarlet fever; gonorrhea; pneumonia; gas gangrene; kidney infections; lymphogranuloma inguinale; undulant fever; choriomeningitis (a disease of mice); and brain abscess.

The drug is not 100 per cent. effective in treating all these diseases but it has achieved notable success in curing many of them—far above that of other methods.

#### Fourth Venereal Disease

The success of sulfanilamide treatment in the fourth venereal disease and the mouse ailment, choriomeningitis, are of special interest because these two conditions are caused by an entirely different class of germ, filterable viruses. Filterable viruses are the cause of such ailments as influenza and infantile paralysis, for which no cure or preventive has yet been established in spite of much effort. It is no secret that the chemists who are trying to develop a supersulfanilamide hope they will be lucky enough to find one that can overcome such virus-caused ailments.

Just how sulfanilamide acts in the body to rout deadly germs and save the patient's life is not clearly known. It does not, according to the best evidence now available, actually kill the germs themselves. The general belief is that it weakens them, perhaps by chemical erosion of their outer covering, so that they are more susceptible to the attack of the body's natural defenders, the leucocytes.

#### Dangerous, Too

The story of sulfanilamide and its conquests is not complete without the chapter on its potential danger. It has caused alarming symptoms in some patients. One eminent authority believes that it is entirely safe, but like every other physician who has studied it, he warns that the patient who is taking sulfanilamide must be carefully watched for the first sign of danger. This is best done by having the patient in the hospital where blood tests can be made regularly and alert nurses can see and report the first untoward symptom.

Unhappiest chapter in the sulfanilamide story pertains to the tragic deaths of nearly 100 persons who were given a so-called Elixir of Sulfanilamide. Actually these deaths were not due to sulfanilamide itself, but to an ingredient in the elixir, diethylene glycol.

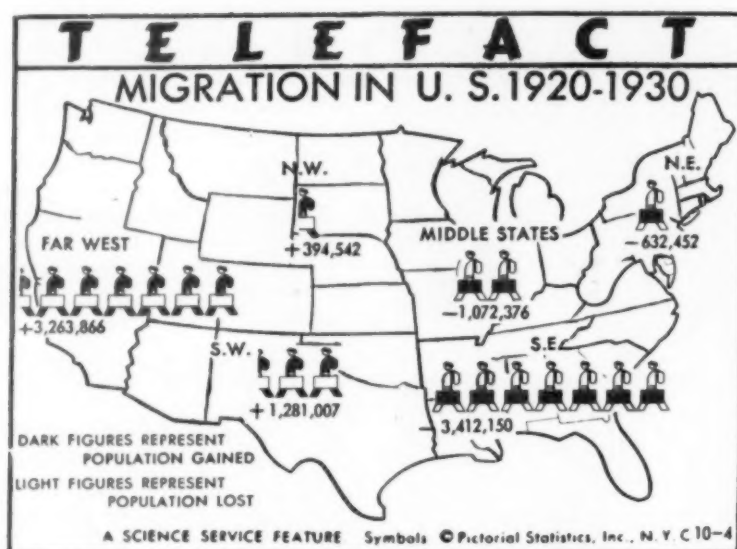
*Science News Letter, December 3, 1938*

Every civilization on record has owed more to borrowing than to inventions of its own members, declares a Columbia University anthropologist, Dr. Ralph Linton.

The average girl is more self-sufficient than the average boy, says one geneticist.

Cooking outdoors on the house roofs was a common custom in ancient Egypt.





MEDICINE

## Automobile Makers Urged To Give First Aid Handbook

Many Traffic Injuries Result in Death Because Patients Are Not Given Proper Care at Time of Accident

IF automobile manufacturers would supply an illustrated first aid handbook with every car, it would help to cut down the "dire and far too frequently disastrous results following automobile accidents."

The proposal of a first aid handbook with every automobile was made by Dr. Charles S. Venable of San Antonio, Tex., at the meeting of the Southern Medical Association.

The folding jack handle in every car makes a good arm or leg splint, Dr. Venable said, but unfortunately Mr. John Q. Public does not know this. Neither, Dr. Venable pointed out, does Mr. Public know that a piece of fence or a small limb from a tree can be used for a splint.

Instead of using such handy objects, he jackknives a person with leg or back broken in an auto accident into the back seat of a car. As a result a simple broken leg bone may result in lifelong disability. Or the patient with the broken back, doubled up into the rear seat instead of being left flat on the ground till an ambulance comes, arrives at the hospital with his spinal cord crushed and may be paralyzed or die. If the patient with broken back or neck is kept in a flat, horizontal position, Dr. Venable ex-

plained, he has a good chance to recover without disability.

Three cardinal principles of first aid which should be universally known, Dr. Venable claims, are the recognition and proper treatment of shock, the control of hemorrhage, and the fixation by splints of joints both above and below a broken bone and the danger of bending the back or neck of a person who complains of pain in these regions.

### Better Housing Urged

REPLACING the poorer homes in the nation by proper housing facilities and eliminating other bad effects of housing were recommended, as measures for prevention of rheumatic fever, by Drs. Carroll M. Pounders and James K. Gray, of the University and Crippled Children's Hospitals, Oklahoma City.

Rheumatic heart disease, according to one estimate quoted by Drs. Pounders and Gray, makes up from 35 to 40 per cent. of all cases of heart disease among adults.

Rheumatic fever is not just a disease of the joints, the Oklahoma City physicians pointed out. It is an infectious disease which affects various parts of the

body, but shows up chiefly in the heart, the joints and surrounding structures, the nervous system and tissues just under the skin. When the nervous system is affected, the condition is termed chorea or St. Vitus' Dance.

"It is predominantly a disease of school age," Drs. Pounders and Gray stated, "and flourishes among the poor where there is overcrowding, bad sanitation, improper heating and damp dwellings. It is of great importance because of its contribution to cardiac (heart) invalidism and deaths, both during childhood and later adult life."

The exact germ which causes the ailment is not known, but the Oklahoma City physicians suggested that probably the germ, whatever it is, remains alive in the body tissues over long periods of time, repeatedly flaring up to cause more attacks of illness.

No idea of the actual number of cases of the ailment is possible because the disease is not reportable like scarlet fever or measles. It is generally estimated to make up from three to seven per cent. of the medical diseases observed in children's hospitals. Girls seem to be somewhat more susceptible to this ailment than boys.

Dampness and chilling are regarded as important factors in the disease. The general use of natural gas for cooking and heating is, in the opinion of Drs. Pounders and Gray, responsible for producing artificially in the semi-arid southwest the damp environment that is strongly conducive to this illness. This natural gas, being a hydrogen gas, it was explained, produces a great deal of moisture when burned. The very poor people in this region who live in tents and shacks do not have as much of the disease as the better class of poor who burn gas in tightly constructed, poorly ventilated dwellings, where it "is not uncommon to see the furniture, walls and ceiling literally dripping wet in real cold weather."

For treatment of active cases of rheumatic fever Drs. Pounders and Gray advised long periods of rest, nourishing food and proper hygiene with a gradual resumption of exercise after activity of the infection is thought to be arrested.

### New Theory of Hard Arteries

A NEW theory of what causes hardening of the arteries, which in turn is important as a cause of heart, kidney and brain disease, was presented by Dr. Neuton S. Stern, associate professor of

medicine at the University of Tennessee College of Medicine.

Dr. Stern blames the condition on blockage or inflammation of very tiny blood vessels within the walls of the arteries themselves. As a result of such blockage of these tiny vessels, called vasa vasorum, cells of the artery walls which are normally nourished with blood from the tiny vasa vasorum are deprived of the oxygen and food they need. Consequently they degenerate with the changes known as arteriosclerosis or hardening of the arteries.

Up to this time, Dr. Stern said, it has not been fully accepted by scientists that the walls of arteries are penetrated beyond the outer one-third by these nourishing blood vessels or vasa vasorum. Dr. Stern presented evidence for his belief that the entire artery wall is permeated by these very small blood vessels.

Injury, certain poisons, and increased stickiness of the blood itself are among the things that may cause blockage of the blood vessels of the artery walls. Other things causing blockage, Dr. Stern said, may be clumps of bacteria, fat globules, and masses of white blood cells.

*Science News Letter, December 3, 1938*

#### ARCHAEOLOGY

### Metal Art Proves Glories Of Persian Wonder Throne

**I**F YOU have heard of the wonder throne built for Persian king Chosroes the Second, and if you doubted that any monarch really enjoyed quite so curious a contrivance you need doubt no longer.

The king really did have a throne that was a pavilion, big enough for himself and hundreds of his courtiers besides. The whole thing really did turn, so that it could face the heavens most favorably in different seasons. And it was royally beautiful, and set in the midst of a lovely garden.

The throne itself can never be found, because Romans burned it when they overthrew the powerful Sassanian dynasty of Persian kings in the seventh century A.D. But in the State Museum at Berlin there is a big bronze salver made about that time, which is engraved to show a building in the center of a radiating garden.

This metal picture has been identified. Dr. Phyllis Ackerman of the American Institute for Iranian Art and Archaeology, says it represents the lost throne of King Chosroes.

The engraving shows a pavilion with small central dome and four corner



## This Christmas Gift Coupon Saves You MONEY, Time, and Work

**T**HOSE of your friends who would like to read **SCIENCE NEWS LETTER**, would enjoy getting a year's subscription from you as a Christmas Gift.

If you give *two* or more such subscriptions, they cost you \$3.50 each (a saving of \$1.50 per subscription)—or you can give *one* gift subscription, and *renew your own* subscription for a year, paying only \$3.50 per subscription.

Not only will it save you money to use the coupon, but think of the *time* and *work* you get rid of. No tramping in and out of department stores, gift stores, any kind of stores, during the jostling Christmas buying days. *Let the postman* do the walking. He is *paid* for it!

Fill out the coupon below and send it to **SCIENCE NEWS LETTER**. Solve at least one or two of your Christmas Gift problems that way. You can pay later, in January.

Mail This Coupon to **SCIENCE NEWS LETTER**, 2101 Constitution Ave., Washington, D. C.

**Please send Science News Letter for one year to:**

Name \_\_\_\_\_

Address \_\_\_\_\_

City and State \_\_\_\_\_

**AND**

Name \_\_\_\_\_

Address \_\_\_\_\_

City and State \_\_\_\_\_

**Also** ☐ **RENEW** my own subscription at these rates.

**AND, send bill for above order to me in January.**

My Name \_\_\_\_\_

Address \_\_\_\_\_

City and State \_\_\_\_\_

### Special Christmas Gift Subscription Rates

ONE SUBSCRIPTION, 1 year	\$5
TWO SUBSCRIPTIONS, 1 year	\$7
ADDITIONAL YEARLY SUBSCRIPTIONS, each	\$3.50

**No extra postage to anywhere in the world**

domes. Such construction must have been wood—as the light-weight throne on its turn-table reputedly was.

A curtain encloses the domed area. Near the roof is a graceful arcade, which in winter was also curtained, with beaver fur and sable, to keep the king warm. His nobles sat outside on three columned porches, and took the weather.

Dr. Åckerman even points out a row of spool-like wheels under the building,

indicating the mechanism for turning the throne. Horses in a pit beneath pulled it around.

Astral symbols pervade the construction, visible even in the somewhat sketchy engraving. When Chosroes was king, he and the stars, and planets, and fire, and thunder played leading roles in ceremonies for which the fantastic throne-pavilion provided a perfect setting.

*Science News Letter, December 3, 1938*

#### ANTHROPOLOGY

## People of Future Will Be Bigger But Maybe Not Better

**T**ALLER, more robust men and women, but with poorer teeth than we have now, will make up the population of the future if trends of the immediate past and the present continue, Dr. Harry L. Shapiro, anthropologist of the American Museum of Natural History, told the American Philosophical Society in a symposium arranged by the Population Association of America.

But while Dr. Shapiro was willing to forecast what the people of the future will look like, he would undertake no prophecy as to their mental and biological quality. Bigger doesn't always mean better, he reminded his audience.

A great deal will depend on what living conditions are provided for future generations, he said. There is no certainty that the change for the bigger observable in such diverse groups as college students, army recruits, and the children of Japanese immigrants in Hawaii is part of a general evolutionary sweep. More likely it is simply a matter of better nutrition and living conditions. And there is no assurance that the higher IQ level observed in these bigger individuals of the younger generation has any necessary connection with their size.

Mixing of races, which it is now fashionable in some circles to view with alarm, Dr. Shapiro was inclined to think on the whole a good thing. His only concern over the American melting-pot was that in recent decades various stocks had been dumped in so fast that they have tended to form clumps that refuse to melt together. He spoke favorably of such internal migration movements as the drifting out of part of the old native New England stock and their replacement by French Canadians, Italians and

Poles who intermarry with the stay-at-home Yankees.

### Farm Families Smaller

**F**ARMS of the future will become larger and farm families smaller, if present and recent trends continue in the better farm areas of the nation, Dr. C. C. Taylor, head of the division of farm population and rural life, U. S. Department of Agriculture, ventured as his prophecy.

"Under normal price levels, farms in these areas will become more profitable, net incomes per farm and family will be higher, levels of living will be higher, urbanization will increase, and birth rates will fall," said Dr. Taylor. "The poorer land areas of the nation, on the other hand, unless zoned against occupancies of certain types, will continue as small farm areas, incomes will remain low, mechanization will advance slowly if at all, birth rates will continue considerably above the national level, and although there will be migration out during periods of prosperity, there will be considerable in-migration in periods of depression."

Mechanization of farming, as seen by Dr. Taylor, has made vast changes not only in the material standards of living and of labor on the better American farms; it has changed the farmer's way of thinking. He is essentially a businessman, producing goods for the market. The pioneer way of living and thinking, wherein most goods for family consumption were produced and processed at home, and most thinking accordingly centered at home, survives mainly now in what we are pleased to call the "backward" areas.

*Science News Letter, December 3, 1938*

#### PSYCHIATRY

## Mental Disease Cases Will Be Doubled By 1960

**B**Y 1960 the amount of mental disease in the nation will be double what it now is if it progresses at the same rate as at present, Harold F. Dorn, statistician of the U. S. Public Health Service, predicts in a survey of the situation just published by the federal health service.

Increasing age of the population, and not the stress and strain of modern life, is the factor that will double the amount of mental disease in the nation, according to Mr. Dorn's findings.

From 110,000 to 120,000 of the 2,144,800 infants born during 1936 will eventually be committed to a hospital for mental disease, Mr. Dorn states, unless there is a decrease in the rate at which patients are admitted for the first time to mental hospitals.

By 1960 Mr. Dorn estimates that about 135,000 persons each year will be committed to a mental hospital for the first time, if the commitment rates for the whole nation then are no greater than they were for New York State during the three-year period 1929-31. This is nearly twice the present number of first commitments.

Analysis of the number of first admissions to mental hospitals in Massachusetts, New York and Illinois, Mr. Dorn says, does not bear out the belief that mental disease has increased alarmingly in recent years as a result of modern living conditions.

The number of first admissions per 100,000 population decreased among women under 70 years of age in each state. In Massachusetts the same was true for men. In New York and Illinois commitment rates decreased at the younger ages but after age 45 or 50 some increase occurred.

*Science News Letter, December 3, 1938*

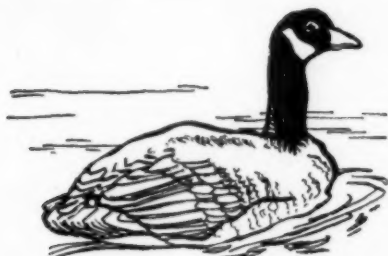
The eye disease trachoma was a plague in ancient Egypt, as it is today.

## Books

SCIENCE NEWS LETTER will obtain for you any American book or magazine in print. Send check or money order to cover regular retail price (\$5 if price is unknown, change to be remitted) and we will pay postage in the United States. When publications are free, send 10c for handling.

Address Book Department  
SCIENCE NEWS LETTER  
2101 Constitution Ave. Washington, D. C.





### Little Sanctuaries

WITH the lion's share of a continent at our disposal, we Americans are rather given to thinking of wildlife conservation in very large and spacious terms. The idea that anything worth while can be done in less than a thousand square miles seems hardly worth considering.

Yet two of Europe's smaller countries, Denmark and the Netherlands, have well-worked-out systems for the protection and encouragement of wildlife, despite the intensive utilization of the last inch of cultivable land necessitated by their limited territories and dense populations.

In Denmark, the government may create wildlife preserves, upon suitable compensation to the landowners. But landowners themselves may set up preserves if they so desire, with the scientific advice and assistance of the government. Two types of wildlife preserves are provided for, intended respectively for game-providing and scientific purposes.

In the Netherlands the cause of wildlife conservation is a genuinely popular one. There is a well-organized society for nature protection, with a membership of 13,000, who are backed by other and even larger organizations such as the bicyclists' union, with over 100,000 members. These groups have been so well able to swing public opinion—not to mention fiscal legislation—that in the past 31 years no less than 39 game and wildlife sanctuaries have been established.

As in Denmark, private landowners are encouraged to put some of their lands to use for the benefit of wildlife. In the Netherlands, this encouragement takes the practical and highly tempting form of a partial remission of taxation.

As a result, more than 325 large estates, with a total of over 125,000 acres, have taken advantage of this law—and

given the country the advantage of their utilization as homes for game and wildfowl. *Science News Letter, December 3, 1938*

PUBLIC HEALTH

## Tells of English Experience With Health Insurance

AMERICAN physicians and American laymen, now in the midst of a bitter struggle to find a mutually satisfactory method of providing medical care for all people, regardless of income, can learn many helpful lessons from English experience with National Health Insurance, Dr. Douglass W. Orr and his wife, Jean Walker Orr, report as a result of a personal survey of the situation in many parts of England.

Details of their survey are to be found in their book, "Health Insurance with Medical Care: The British Experience," (Macmillan). The study was made possible by a scholarship in honor of Samuel A. Barnett, founder of Toynbee Hall in London, the first of the world's social settlements.

One of the things this American physician and his social worker wife declare they learned is that National Health Insurance in England lives up to the 10 principles which the American Medical Association says should govern any American experiments for organizing medical and hospital services.

Another benefit seen by the authors in the English system is that it retains and makes full use of the general practitioner—the time-honored family doctor whose disappearance from the American medical scene has led to much lamenting.

Two significant defects of the English

system are also pointed out. One of these has to do with the question of how large a panel of patients, that is, how many a doctor can handle effectively. Most of the panel doctors do not believe their panels are too large for high quality work, but Dr. and Mrs. Orr, who have talked to patients as well as physicians, believe the limit should be lower than 2,500 insured persons.


"More significant difficulties," the Orrs state, "arise from the Approved Society system."

These voluntary insurance societies, existing before National Health Insurance, became the carriers of health insurance. While we do not have many such societies in the United States, the large life and industrial insurance companies might wish to take over this function as carriers of an American health insurance scheme. Possible difficulties with such a system are described by the Orrs.

Other defects of the English system as seen by the Orrs are:

It is not extensive enough in that it fails to take in all members of the insured worker's family; it is not closely enough tied in with other public health activities and with the services of consultants (specialists), laboratories, home nurses and hospitals.

*Science News Letter, December 3, 1938*



## SHOW and SIDE-SHOW

By JOSHUA ROSETT

In this book scientists inadvertently win a war against the insect world, and the effect on our own mechanized civilization is so amazing that once read, this book will never be forgotten.

A fascinating plot...love interest...humor...mystery.

A masterpiece of satire as far in advance of Juvenal and Swift as the streamlined train and the airplane are in advance of the ox cart. \$2

RODALE PRESS      Emaus, Pa.

# •First Glances at New Books

## Psychology

**EXPERIMENTAL PSYCHOLOGY**—Robert S. Woodworth—*Holt*, 889 p., \$5. A comprehensive textbook for college students by an authority in this field.

*Science News Letter, December 3, 1938*

## Aeronautics

**AIR PILOTING: A MANUAL OF FLIGHT INSTRUCTION**—Virgil Simmons—*Ronald*, 284 p., illus., \$3. This text is intended to aid student pilots and licensed pilots to meet government requirements for higher pilot grades. Its author has served in the Army and Navy and as a flying school instructor.

*Science News Letter, December 3, 1938*

## Documentation

**RESOURCES OF SOUTHERN LIBRARIES; A SURVEY OF FACILITIES FOR RESEARCH**—Robert B. Downs, ed.—*American Library Association*, 370 p., \$4.50. With the assistance of regional chairmen and their assistants in ten southern states, the librarian of the University of North Carolina has edited a volume which should prove useful to scholars and invaluable to librarians of the South.

*Science News Letter, December 3, 1938*

## Economics

**INFLATION'S TIMING AND WARNING SYMPTOMS OF ITS EXPLOSIVE STAGE**—Donald G. Ferguson and Allen H. Lester—*Amer. Inst. for Econ. Research*, 64 p., \$1.

*Science News Letter, December 3, 1938*

## Zoology—Juvenile

**AMERICAN ANIMAL BOOK**—Philip L. Martin—*Knopf*, 36 colored illustrations, \$1.75. There is no text, only beautifully done poster-like pictures. A slender book, but superb; it would make an excellent Christmas present.

*Science News Letter, December 3, 1938*

## Physics

**LABORATORY EXPERIMENTS AND WORKBOOK** to accompany Black and Davis *Elementary Practical Physics*—Newton Henry Black and Elbert Cook Weaver—*Macmillan*, 290 p., \$1.

*Science News Letter, December 3, 1938*

## Ichthyology

**A NEW CATALOGUE OF THE FRESH-WATER FISHES OF PANAMA**—Samuel F. Hildebrand—*Field Museum of Natural History*, 142 p., \$1.50.

*Science News Letter, December 3, 1938*

## Chemistry—Agriculture

**THE SOYBEAN INDUSTRY**—A. A. Horvath—*Chem. Pub. Co. of N. Y.*, 221 p., \$4. The new popularity of one prod-

uct sometimes revolutionizes a whole agricultural-industrial setup. Such an impact is apparently being delivered by the soybean. This book tells about it, concisely and simply, in a way that will make it useful either as collateral reading in college courses or to bring down to date information for the man already at work in the world.

*Science News Letter, December 3, 1938*

## Medicine—Economics

**HEALTH INSURANCE WITH MEDICAL CARE: THE BRITISH EXPERIENCE**—Douglas W. Orr and Jean Walker Orr—*Macmillan*, 271 p., \$2.50. See page 367.

*Science News Letter, December 3, 1938*

## Psychology

**INTRODUCTION TO METHODS IN EXPERIMENTAL PSYCHOLOGY**—Miles A. Tinker and Kenneth H. Baker—*Appleton-Century*, 222 p., spiral binding, perforations and graph paper for insertion in notebook, \$2.75. A ring-bound laboratory manual placing emphasis on scientific method.

*Science News Letter, December 3, 1938*

## Photography

**PHOTOGRAPHY IS FUN: LEARNING AND SEEING BY DOING, AN AMATEUR'S EXPERIENCES**—Russell Doubleday—*Doubleday*, 95 p., illus., \$1.50. A book addressed not to the "serious" photographer, but to the person who wants to have fun taking pictures.

*Science News Letter, December 3, 1938*

## Economics

**PRELIMINARY INVESTIGATION INTO MEASURES OF A NATIONAL OR INTERNATIONAL CHARACTER FOR RAISING THE STANDARD OF LIVING**—N. F. Hall—*Columbia Univ. Press*, 91 p., 50 c.

*Science News Letter, December 3, 1938*

## Natural History

**THE UNDERWATER ZOO**—Theodore McClintock—*Vanguard*, 111 p., \$1.75. A personalized account of what one interested amateur was able to accomplish with a glass tank and a few specimens of such things as water striders, whirligig beetles, dragonfly larvae, pond snails and other small aquatic creatures. It makes fascinating reading, and it is to be hoped will stimulate emulation—for it is really easy to do.

*Science News Letter, December 3, 1938*

## Engineering

**FORGING PRACTICE**—Carl G. Johnson—*American Technical Soc.*, 136 p., illus., \$1.50.

*Science News Letter, December 3, 1938*

## Meteorology

**NEW ENGLAND HURRICANE: A FACTUAL, PICTORIAL RECORD**—Federal Writers' Project—Hale, 220 p., illus., \$1.50. In the seventeenth century, a major disaster was usually memorialized in a popular broadsheet ballad; nowadays we get out a book of pictures. This time the job has been done with journalistic speed, as well as with a good newspaperman's eye for the dramatic. Workers of the Federal Writers' Project were distributed all over the storm-struck area, so that eye-witness accounts and on-the-spot photographs were only hours in being assembled at headquarters. After that, it was a matter of rapid skill in organizing the material and of skilled speed on the part of engravers, printers and binders.

*Science News Letter, December 3, 1938*

## Psychology

**THE JUDGES OF THE SUPREME COURT, 1789-1937**—Cortez A. M. Ewing—*Univ. of Minn. Press*, 124 p., \$2. Because of the present vacancy on the supreme court bench, this description of the ages and other qualifications of all previous justices is interesting.

*Science News Letter, December 3, 1938*

## Physics

**A MANUAL OF RADIOACTIVITY** (2d ed.)—George Hevesy and F. A. Paneth—*Oxford Univ. Press*, 306 p., \$5.50. This book, which has become an authority for graduate students, has again been revised to bring it up to date. Literature references as late as 1937 are included.

*Science News Letter, December 3, 1938*

## Engineering

**GASEOUS ELECTRICAL CONDUCTORS**—E. L. E. Wheatcroft—*Oxford Univ. Press*, 265 p., \$6.50. A British text on vacuum discoveries and techniques of value to the physicist and electrical engineer.

*Science News Letter, December 3, 1938*

## Anthropology

**VIKINGS OF THE SUNRISE**—Peter H. Buck—*Stokes*, 335 p., \$3.50. The story of the Polynesians, who crossed the Pacific in great canoes and gradually settled upon the islands between Hawaii, New Zealand and Easter Island, is traced partly through their traditions and sagas, partly through scientific evidence. The author, who is half Polynesian, is director of the Bishop Museum of Honolulu and Professor of Anthropology at Yale University.

*Science News Letter, December 3, 1938*